

HOUSING OF AN ELECTRONIC DEVICE WITH A WINDOW AND A WINDOW
PANEL FOR CLOSING THE WINDOW

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of Taiwanese
5 Application No. 092104570, filed on March 4, 2003.

BACKGROUND OF THE INVENTION

1. Field of the invention

This invention relates to a housing of an electronic device, more particularly to a housing of an electronic device with a window and a window panel mounted movably on the housing for closing the window.
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2. Description of the related art

Desktop personal computers normally include a housing defining an inner space for accommodating electronic components, such as a mother board, a hard disc drive, a CD-ROM drive, and a power unit, therein.
15 The housing includes housing walls that are assembled together through screw means. To gain access into the inner space in the housing, the screw means are required to be removed from the housing, which is relatively inconvenient and laborious.
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SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide a housing of an electronic device that
25 is capable of overcoming the aforesaid drawback of the prior art.

According to the present invention, there is

provided a housing for an electronic device. The housing comprises: a housing wall that confines an inner space therein and that is formed with a window for access into the inner space; a rail unit formed 5 on the housing wall and disposed adjacent to the window; and a window panel mounted movably on the rail unit and movable between a closed position, in which the window is covered by the window panel, and an open position, in which at least a portion of the window 10 is exposed from the window panel.

BRIEF DESCRIPTION OF THE DRAWINGS

In drawings which illustrate an embodiment of the invention,

Fig. 1 is a perspective view of a preferred 15 embodiment of a housing of an electronic device according to this invention;

Fig. 2 is a fragmentary exploded perspective view of the housing of Fig. 1;

Fig. 3 is an enlarged fragmentary view of the 20 housing of Fig. 1 to illustrate how a window panel is mounted slidably on the housing;

Figs. 4 to 6 are enlarged fragmentary views of the housing of Fig. 1 to illustrate consecutive steps of movement of the window panel from an open position 25 to a closed position;

Figs. 7 to 9 are fragmentary sectional views of the housing of Fig. 1 that respectively correspond

to Figs. 4 to 6; and

Fig. 10 is a side view of the housing of Fig. 1 viewed from an inner side of the housing to illustrate how the window panel is retained at the 5 closed position through an urging member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figs. 1 to 3 illustrate the preferred embodiment of a housing 2 for accommodating electronic components (not shown) of an electronic device, such 10 as a desktop personal computer, according to this invention.

The housing 2 includes: a housing wall 21 that confines an inner space therein and that is formed with a window 211 for access into the inner space; 15 a rail unit 3' formed on the housing wall 21 and disposed adjacent to the window 211; and a window panel 23 mounted movably on the rail unit 3' and movable between a closed position (see Fig. 6, 9, and 10), in which the window 211 is covered by the window 20 panel 23, and an open position (see Figs. 4 and 7), in which at least a portion of the window 211 is exposed from the window panel 23. The window panel 23 is preferably transparent.

The rail unit 3' includes a pair of opposite 25 first rails 3, each of which defines a first guiding groove 30 that is disposed adjacent to a respective one of two opposite sides 2111 of the window 211. The

window panel 23 has two opposite sides 230, each of which has opposite top and bottom ends 2301. The window panel 23 is formed with a pair of first studs 241 that respectively project from the top ends 2301 of the opposite sides 230 of the window panel 23 into the first guiding grooves 30 in the first rails 3.

The rail unit 3' further includes a pair of opposite second rails 4, each of which defines a second guiding groove 40 and each of which is disposed below and is aligned with a respective one of the first rails 3. The window panel 23 is further formed with a pair of second studs 242 that respectively project from the bottom ends 2301 of the opposite sides 230 of the window panel 23 into the second guiding grooves 40 in the second rails 4.

Each of the first rails 3 includes a pair of parallel first inner and outer ribs 31, 32 that cooperatively define the first guiding groove 30 therebetween. The first inner rib 31 has opposite top and bottom ends 311, 312 (see Figs. 3 and Figs. 7 to 9) and a side face 313 that extends from the bottom end 312 of the first inner rib 31 to the top end 311 of the first inner rib 31, and that confines one side of the first guiding groove 30. The first inner rib 31 further has a top end face 314 that extends transversely from the side face 313 of the first inner rib 31. Each of the first studs 241 is in sliding

contact with the side face 313 of the first inner rib 31 of the respective one of the first rails 3 when the window panel 23 is disposed between the closed and open positions, and is seated on the top end face 5 314 of the first inner rib 31 of the respective one of the first rails 3 (see Fig. 9) when the window panel 23 is moved to the closed position.

Each of the second rails 4 includes a pair of parallel second inner and outer ribs 41, 42 that 10 cooperatively define the second guiding groove 40 therebetween. The second inner rib 41 has opposite top and bottom ends 411, 412 and a side face 413 that extends from the bottom end 412 of the second inner rib 41 to the top end 411 of the second inner rib 41, 15 and that confines one side of the second guiding groove 40. The second inner rib 41 further has a top end face 414 that extends transversely from the side face 413 of the second inner rib 41. Each of the second studs 242 is in sliding contact with the side face 20 414 of the second inner rib 41 of the respective one of the second rails 41 when the window panel 23 is disposed between the closed and open positions, and is seated on the top end face 414 of the second inner rib 41 of the respective one of the second rails 4 25 (see Fig. 9) when the window panel 23 is moved to the closed position.

The window panel 23 is formed with a protrusion

27 that projects transversely therefrom and that defines an inclined face 271 inclined relative to the window panel 23 and having an inner end 2711 and an outer end 2712 which is opposite to the inner end 2711
5 and which is distal from the window panel 23. An urging member 26 is mounted on the housing wall 21, and has a spring arm 260 with a free end 2601 that is in sliding contact with and that abuts against the inner end 2711 of the inclined face 271 of the protrusion 27 when
10 the window panel 23 is moved from the open position to a position adjacent to the closed position, and that is in sliding contact with and that abuts against the outer end 2712 of the inclined face 271 of the protrusion 27 when the window panel 23 is moved
15 further to the closed position. The spring arm 260 of the urging member 26 is moved in a direction away from the window panel 23 when slid from the inner end 2711 to the outer end 2712 of the inclined face 271 of the protrusion 27 upon movement of the window panel
20 23 from the open position to the closed position (see Fig. 3 and Figs. 7 to 9), thereby providing an urging force against the window panel 23 to retain releasably the window panel 23 at the closed position. To open the window 211, the window panel 23 is pushed inwardly
25 of the housing 2 so as to move the first and second studs 241, 242 away from the top end faces 314 of the inner ribs 31 of the first rails 3 and the top end

faces 414 of the inner ribs 41 of the second rails 4 and so as to permit downward movement of the window panel 23 to the open position by virtue of the weight of the window panel 23. A weight (not shown) may be 5 provided on the window panel 23 to facilitate downward movement of the window panel 23. An operating lever 231 is formed on the window panel 23 for facilitating opening and closing operations of the window 211.

The side face 313 of the first inner rib 31 of 10 each of the first rails 3 has an inclined segment 3131 that extends inclinedly from the top end face 314 of the first inner rib 31 for facilitating movement of the respective first stud 241 between the top end face 314 of the first inner rib 31 and the side face 313 of the 15 first inner rib 31. The side face 413 of the second inner rib 41 of each of the second rails 4 has an inclined segment 4131 that extends inclinedly from the top end face 414 of the second inner rib 41 for facilitating movement of the respective second stud 242 between the 20 top end face 414 of the second inner rib 41 and the side face 413 of the second inner rib 41.

A friction providing unit 25 includes a first friction member 251 that is mounted on the housing wall 21, and a second friction member 252 that is 25 mounted on the window panel 23 and that engages frictionally and movably the first friction member 251 so as to provide a frictional force between the ,

window panel 23 and the housing wall 21 upon movement of the window panel 23 between the closed and open positions and so as to prevent free fall of the window panel 23 during downward movement of the window panel 5 23 from the closed position to the open position.

In this embodiment, the first friction member 251 includes a pair of pinions 251' that are mounted on the housing wall 21 and that are respectively disposed adjacent to the opposite sides 2111 of the 10 window 211. The second friction member 252 includes a pair of racks 252' that are respectively mounted on the opposite sides 230 of the window panel 23, and that engage respectively the pinions 251'.

Figs. 4 to 6 illustrate consecutive steps of 15 movement of the window panel 23 from the open position to the closed position. Figs. 7 to 9 are sectional views that correspond to Figs. 4 to 6, respectively.

Since the inner space of the housing 2 can be accessed through the window 211, which can be easily opened by pushing 20 the window panel 23 inwardly of the housing 2 to permit downward movement of the window panel 23 by virtue of the weight of the window panel 23, the aforesaid drawback as encountered in the prior art can be eliminated accordingly.

With the invention thus explained, it is apparent 25 that various modifications and variations can be made without departing from the spirit of the present invention.